

REMARKS

Claims 1, 3, 11, 15, 19, 20, and 35-37 have been amended to clarify the invention. New claims 38-62 have been added. The amendments do not contain any new matter. For instance, the amendments to the independent claims are supported on page 25, last paragraph and page 30, lines 17-19, among other places. Additionally, the new dependent computer readable media claims are similar to the dependent method claims. Claims 1-62 remain pending.

The Examiner rejected claims 1-11, 19-26, 28-29, and 36-37 under 35 U.S.C. §102(b) as being anticipated by Otani (U.S. patent 6,351,469). The Examiner has rejected the remaining claims under 35 U.S.C. §103(a) as being unpatentable over Otani in view of one or more secondary references Eng (U.S. patent 5,963,557), Friedman (U.S. patent 5,949,788), and Data-Over-Cable Service Interface Specification (DOCSIS), Radio Frequency Interface Specification, SP-RFI-I02-971008, Interim Specification, Cable Television Laboratories, 1997 (herein referred to as DOCSIS-1997).

The present invention is directed towards methods, apparatus, and computer readable medium for using or providing multiple channels within a cable modem. Claim 1 is directed towards a method that requires “transmitting a first portion of the upstream data on a first upstream channel from the cable modem” and “transmitting a second portion of the upstream data on a second upstream channel from the cable modem, the second upstream channel differing from the first upstream channel.” Claim 1 also requires that “the first upstream channel and the second upstream channel were assigned within a downstream channel received into the cable modem” and that “the first upstream channel has a different frequency range than the second upstream channel.” Although it is inherent that “different channels” (when recited in the context of *current* cable modem systems) correspond to “different frequency ranges”, claim 1 as well as the other claims have been amended to clarify this point.

Claim 36 is directed towards a computer readable medium that has a similar limitation. Claim 61 is directed towards an apparatus that has means having a similar feature. Claim 11 is directed towards a cable modem and requires that “the multiple upstream channels are assigned within a downstream channel received into the cable modem” and “the first upstream channel has a different frequency range than the second upstream channel.” Claim 19 is directed towards a head end for receiving upstream data from a cable modem and requires that the head end is “further operable to assign the first upstream channel and the second upstream channel to the

cable modem” and that “the first upstream channel has a different frequency range than the second upstream channel.” Claim 62 is directed towards an apparatus that has means having a similar feature. Claim 20 is another method claim for transmitting upstream data and requires “receiving a downstream signal within a downstream channel into the cable modem” and “configuring the cable modem to transmit over ~~the~~ a first upstream channel specified in the downstream signal.” Claim 20 also recites “configuring the cable modem to transmit over a second upstream channel which has a different frequency range than the second upstream channel if the second channel is specified in the downstream signal.” Claim 36 is directed towards a computer readable medium and has a similar limitation. Claim 35 is directed towards a cable modem having a processor configured to “a processor configured to receive a downstream signal within a downstream channel into the cable modem, configure the first transmitter to transmit data over a first upstream channel obtained from the downstream signal, configure the second transmitter to transmit data over a second upstream channel having a different frequency than the first channel and obtained from the downstream signal if the second upstream channel is available, initiate transmission of a first data portion over the first upstream channel by writing to the first memory portion of the first media access controller and initiate transmission of a second data portion over the second upstream channel by writing to the second memory portion of the second media access controller.”

In contrast, the primary reference Otani discloses a system having multiplexed data and voice transmitted from a cable modem, rather than sending data on channels having different frequency ranges, in the manner claimed. The system of Otani has a center device and a number of terminals. Each device has access to two channels, a B channel (for voice) and a C channel (for data). Column 15, lines 48-51. Each device can allocate its own voice (first medium signal) or data (second medium signal) to a particular sub-channel based on idle/busy information. See Column 4, lines 52-58. As shown in Figure 8, the B and C channels are simply time multiplexed. Of particular note, the system of Otani is a TDMA or “time division multiple access” system. See Abstract.

In other words, Otani fails to teach or suggest a method or apparatus for transmitting or configuring multiple upstream channels in a cable modem based on upstream channels having different frequency ranges, in the manner claimed in claims 1, 11, 20, 35, 36, and 61. Additionally, Otani fails to teach or suggest a head end or apparatus that assigns a first and a second upstream channel having different frequency ranges to a cable modem, in the manner claimed in claim 19 and 62. The secondary references also fail to teach or suggest such a

limitations. Accordingly, it is respectfully submitted that claims 1, 11, 19, 20, 35, 36, 37, 61, and 62 are patentable over the cited references.

The Examiner's rejections of the dependent claims are also respectfully traversed. However, to expedite prosecution, all of these claims will not be argued separately. Claims 2-10, 12-18, 21-34, and 38-60 each depend directly from independent claims 1, 11, 20, 36, or 37 and, therefore, are respectfully submitted to be patentable over cited art for at least the reasons set forth above with respect to claims 1, 11, 20, 36, or 37. Further, the dependent claims require additional elements that when considered in context of the claimed inventions further patentably distinguish the invention from the cited art.

Applicants believe that all pending claims are allowable and respectfully requests a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

Respectfully submitted,

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